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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,311	09/05/2003	Yingjian Chen	RDRT 1027-2	8204

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EXAMINER	
KIM, PAUL D	

ART UNIT	PAPER NUMBER
3729	

DATE MAILED: 09/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,311	CHEN ET AL.	
	Examiner	Art Unit	
	Paul D Kim	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-19 and 21-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-19 and 21-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/29/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 18, 19, 21-25, 29, 30 and 41 objected to because of the following informalities:

Re. Claims 18, 19, 21-25, 29, 30 and 41: The Phrase "FeXn" appears to be –FeXN--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-19 and 21-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re. Claim 13: The phrase "patterning a second pole" as recited in line 10 renders the claim vague and indefinite. It is unclear as to how the second pole is patterned without forming the second pole.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 13, 17 and 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al. (US PAT. 5,843,521) view of Santini (US PAT. 5,901,431).

Ju et al. teach a process of making a magnetic transducer comprising steps of: forming a first magnetic pole (32) of a magnetic material; depositing a first insulation layer (34); depositing a dielectric write gap layer (40) as shown in Fig. 3; forming an electrically conductive coil and depositing a second insulation layer (as disclosed on col. 11, lines 21-31); sputtering depositing a thin layer of high magnetic moment material (42); patterning for a second pole (a hole as shown in Fig. 3) and plating a magnetic material in the pattern of the second pole (46) as shown in Figs. 3 and 4; performing a ion milling process to remove at least a portion of the high magnetic moment material not covered by the plated second pole as shown in Fig. 5 (see also col. 8, line 15 to col. 10, line 40).

As per claim 17 Ju et al. also teach that the high magnetic moment material is made of FeAlN (see col. 8, lines 15-39).

As per claims 21-25 at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to apply the high magnetic moment material as recited in the claimed invention because Applicant has not disclosed that the high magnetic moment material as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Ju et al. because the high magnetic moment material as recited in the claimed invention would perform equally well with the high

magnetic moment material of FeAlN in Ju et al. Therefore, it would have been an obvious matter of design choice to modify the high magnetic moment material of Ju et al. to obtain the invention as specified in claims 21-25.

As per claims 26 and 27 Ju et al. also teach that the second pole magnetic material is NiFe having a thickness of 2-5 microns (See also col. 9,lines 42-49).

However (as per claim 13), Ju et al. do not teach a curing process for the first insulation layer. Santini teaches a process of forming a thin film inductive head including a process of curing a second insulation layer (12) covered a coil as shown in Fig. 5E in order to continue for manufacturing process to complete the thin film inductive head. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a magnetic transducer of Ju et al. by curing a second insulation layer covered a coil as taught by Santini in order to continue for manufacturing process to complete the thin film inductive head.

6. Claims 14, 28, 31-35 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al. view of Santini, and further in view of Chen et al. (US PAT. 6,430,806).

Ju et al., modified by Santini, teach all of the limitations as set forth above except processes of sputter depositing a layer of a high magnetic moment material onto the first pole, masking the high magnetic moment material in a pattern corresponding to a pedestal to be formed on an end of the first pole and etching to remove the sputter deposited high magnetic moment material not covered by the mask to form the pedestal. Chen et al. teach a process of manufacturing an inductive write head including

processes of sputter depositing a layer of a high magnetic moment material (120) onto a first pole (66) as shown in Fig. 5, masking (100) the high magnetic moment material in a pattern corresponding to a pedestal to be formed on an end of the first pole as shown in Fig. 6 and etching to remove the sputter deposited high magnetic moment material not covered by the mask to form the pedestal (74) as shown in Fig. 7 (see also col. 3, line 41 to col. 6,line 49) in order to improve performance of the write element. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a magnetic transducer of Ju et al., modified by Santini, by processes of forming a pedestal layer as taught by Chen et al. in order to improve performance of the write element.

As per claims 28 and 31-35 at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to apply the high magnetic moment material as recited in the claimed invention because Applicant has not disclosed that the high magnetic moment material as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Ju et al. because the high magnetic moment material as recited in the claimed invention would perform equally well with the high magnetic moment material of FeAlN in Ju et al. Therefore, it would have been an obvious matter of design choice to modify the high magnetic moment material of Ju et al. to obtain the invention as specified in claims 31-35.

As per claim 40 Ju et al. also teach that the high magnetic moment material is made of FeAlN (see col. 8, lines 15-39).

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ju et al. view of Santini and Chen et al., and further in view of Barr et al. (US PAT. 6,198,609).

Ju et al., modified by Santini and Chen et al., teach all of the limitations as set forth above except a process of polishing the first insulation layer by CMP process. Barr et al. teach a process of forming a magnetic transducer including a process of polishing an insulation layer by CMP process in order to form a planarizing insulation layer to expose a pedestal layer. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a magnetic transducer of Ju et al., modified by Santini and Chen et al., by a process of polishing the first insulation layer as taught by Barr et al. in order to form a planarizing insulation layer to expose a pedestal layer.

Allowable Subject Matter

8. Claims 15, 18, 19, 29, 30, 36-39 and 41-51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose the claimed invention such as several different etching processes to remove second pole, a portion of the write gap layer and

a material for the pedestal (as per claim 15) and the high magnetic moment material is formed of a lamina of FeXN of a high magnetic moment material and a lamina of a cobalt based ferromagnetic amorphous alloy or non-magnetic dielectric material (as per Claims 18, 19, 29, 30, 36-39 and 41-51).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 703-308-8356. The examiner can normally be reached on Tuesday-Friday between 8:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul D Kim
Examiner
Art Unit 3729